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F1R R15B1

(56) Documents Cited:  
WO 1999/002274 A1  
WPI A.A.N: 2002-228765 [29] & DE 20118745 U1 WPI  
A.A.N: 1999-230545 [20] & DE 19744260 A1 WPI A.A.N:  
1985-311500 [50] & DE 3420765 A1

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UK CL (Edition V) B2F FEA FHX, F1R R15B1 R15B2  
INT CL<sup>7</sup> B05B 1/00, B05C 17/005  
Other: ONLINE: WPI EPODOC JAPIO

(54) Abstract Title: Adjustable nozzle

(57) An adjustable nozzle comprises a joint 3,5, such as with diagonally interlocking parts, that permits the tip of the nozzle (1, fig.1a) to pivot without restricting a flow path through the centre of the nozzle, as can be seen in the transition from figs.1a-1b-1c. Pivotal position maintaining means, such as resistance notches (4, fig.3) and nodules (6, fig.4), are provided such that the nozzle tip (1, fig.1a) does not rotate of its own accord unless specifically rotated, such as by hand. Attachment means, such as an internal screw thread 8, are provided such that the nozzle might be attached to a cartridge of fluent material, such as mounted in a cartridge gun. Such material might commonly be used in the nozzle may comprise caulk, filler, sealer, adhesive, silicone, adhesive, such as used by builders, plumbers and DIY enthusiasts amongst others. The nozzle may aid the application of fluid building materials in hard to reach places, such as behind wall pipes, during building, decorating or the like.

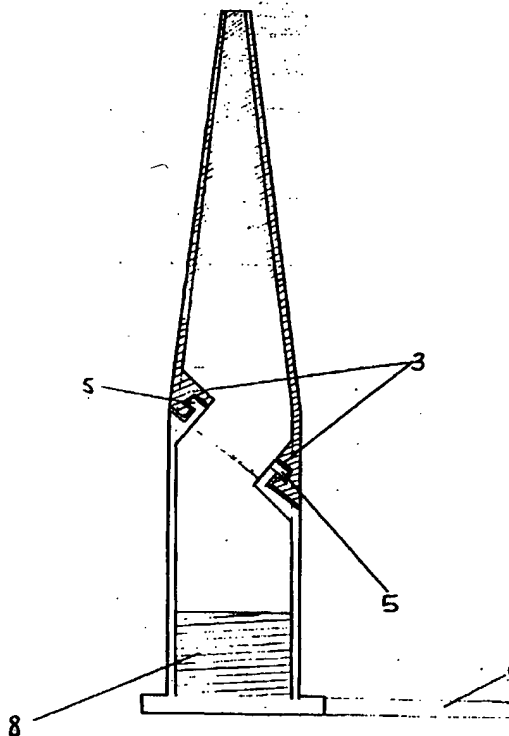


FIG. 2

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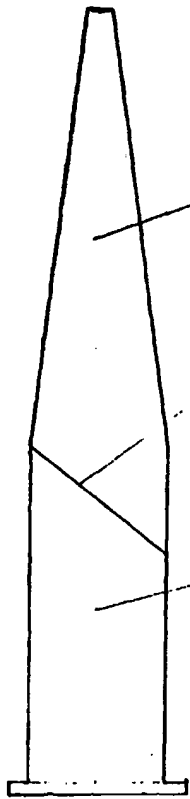


FIG. 1a

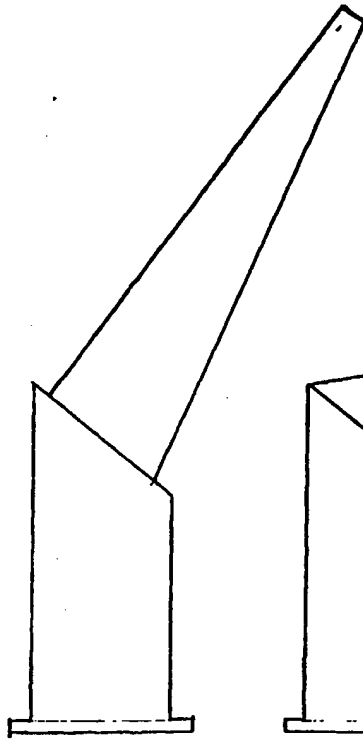


FIG. 1b

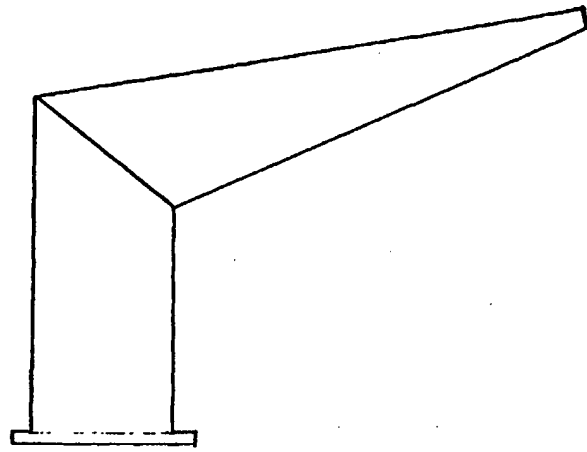


FIG. 1c

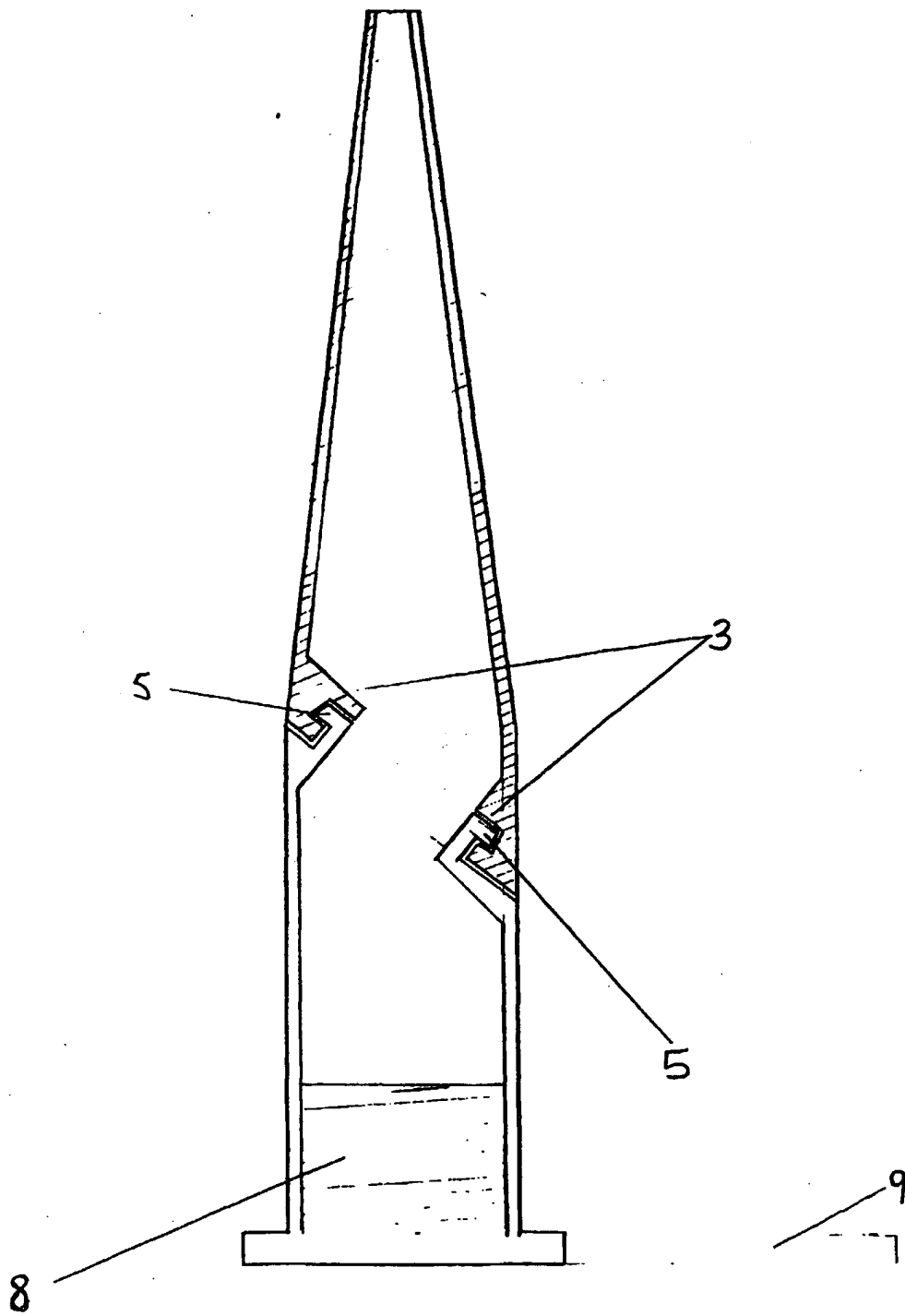


FIG. 2

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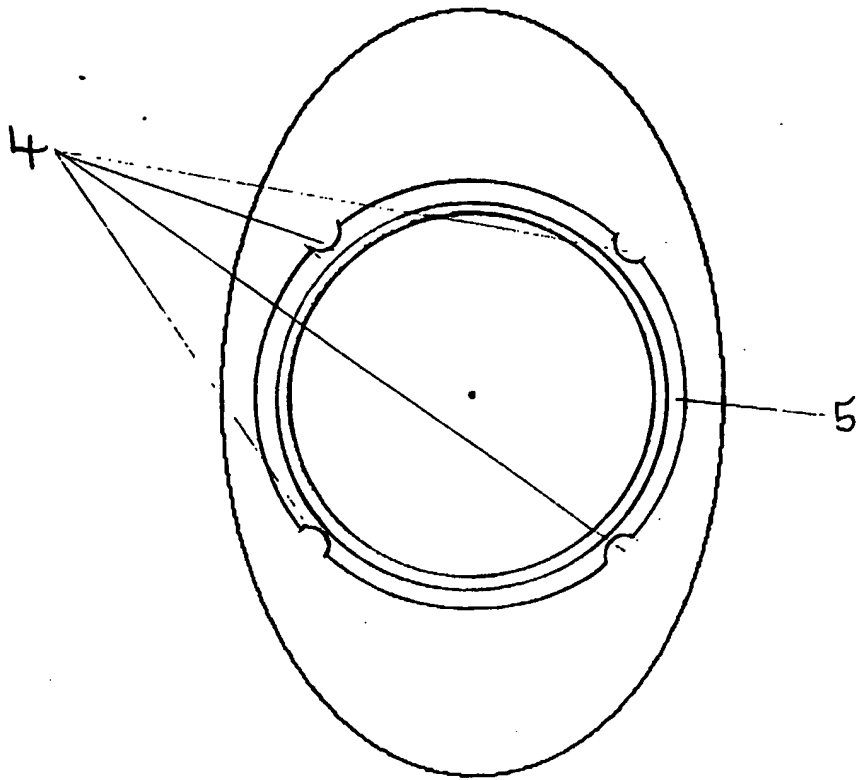


FIG. 3

4/4

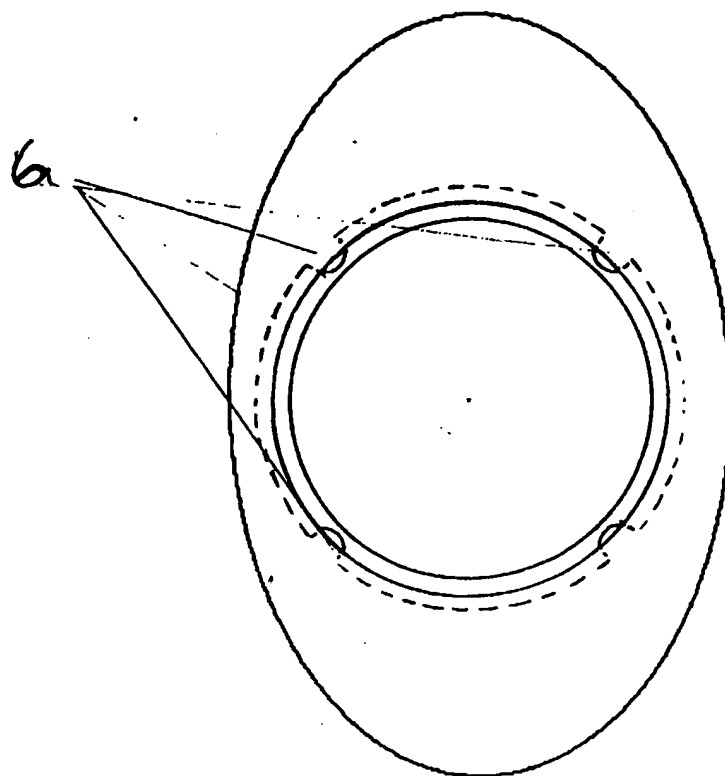


FIG. 4

### Adjustable Nozzle

This invention relates to an adjustable nozzle, which can be secured to a building material cartridge such as silicone, decorators' caulk or adhesive etc.

Whatever the trade, a plumber, builder, carpenter, double glazing fitter or just a DIY enthusiast, most will own what is commonly known as a silicone gun. A device that a cartridge (not necessarily silicone) is inserted in order to extract the contents of the cartridge via a nozzle.

A silicone gun with cartridge and nozzle can be as long as 60cm. This creates several problems. When applying silicone for example, the nozzle has to be dragged across a surface at a specific angle in order to apply it in the exact location required. If it is not applied evenly or neatly at this stage the end result is not going to be neat either.

Because the current nozzle is straight, it can be awkward or sometimes impossible to achieve the necessary angle required for application. Working in a confined area for example or when hindered by pipes, taps or even a wall.

The current nozzle cannot be bent as this creates a fold and restricts the flow of the contents from the cartridge.

Accordingly, it is a principal objective of the present invention to provide a nozzle that can be adjusted by way of a joint that does not restrict the flow of the cartridge contents, the joint provides means for the tip of the nozzle to be pivoted, enabling easy application into difficult and awkward areas, means to maintain the nozzle in a set position are incorporated within the joint to prevent it from rotating out of position independently. The nozzle features releasable means for securing to a cartridge.

A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings. However minor alterations, improvements or fine-tuning of the present invention may be incorporated without departing from the spirit of this invention. It should therefore be understood that the invention is not limited to what is described in the specification and drawings, which should not be interpreted in a limited sense.

Figure 1a shows the nozzle in its upright or straight position.

Figure 1b shows the nozzle in its midway position.

Figure 1c shows the nozzle in its extreme position.

Figure 2 shows a cross section of the nozzle from a side elevation highlighting the internal joint.

Figure 3 shows the bottom male half of the joint.

Figure 4 shows the top female half of the joint

Referring to the drawings the nozzle comprises of two halves, a top marked 1 in fig 1a and a bottom marked 2 in fig 1a. Together they form a complete nozzle and are connected by a male to female interlocking joint, comprising a flange on the male half marked 5 in fig 2 and fig 3 enabling the female half marked 3 in fig 2 (shaded) to clip and lock onto the male half as seen in the cross section in fig 2. The flange on the male half of the joint features a series of notches marked 4 in fig 3 that correspond to the nodules featured on the female half of the joint marked 6 in fig 4. These features correspond to provide resistance and prevent the top section of the nozzle from rotating freely or independently during the application of the cartridge contents. The joint marked 7 in fig 1a is substantially diagonal in relation to the nozzle in order that the degree of bend increases as the top of the nozzle is rotated. The aforementioned notches and nodules will be indicative of the nozzles upright position as seen in fig1a, the midway position as seen in fig 1b and the extreme most position as seen in fig 1c. The bottom of the nozzle features means to secure the nozzle to the cartridge by way of a thread marked 8 in fig 2. Means to attach the nozzle to the cartridge for packaging purposes may also be provided by way of an arm that allows the nozzle to hang inverted, down the side of the cartridge marked 9 in figure 2.

### Claims

1. An adjustable nozzle featuring a joint that provides means to pivot the tip of the nozzle, without restricting the flow of the cartridge contents to which the nozzle is attached, means to maintain the pivotal position of the tip of the nozzle are incorporated within the joint to prevent it from rotating out of position independently, means for attaching the nozzle to a cartridge.
2. An adjustable nozzle as claimed in claim 1 comprising or two parts adapted to interlock and thus forming a pivotal joint.
3. An adjustable nozzle as claimed in claim 1 and claim 2 wherein means incorporated within the joint to maintain the pivotal position of the nozzle are provided by a series of notches and nodules that correspond with each other as the joint is rotated.
4. An adjustable nozzle as claimed in claim 1, claim 2 and claim 3 wherein the interlocking joint comprises of a male to female configuration, the male featuring a flange, the female complements the flange thus forming a joint that clips together.
5. An adjustable nozzle as claimed in claim 1, claim 2, claim 3 and claim 4 wherein a joint is orientated substantially diagonal in relation to the length of the nozzle in order that the degree of bend increases as the top of the nozzle is rotated.
6. An adjustable nozzle as claimed in any preceding claim, wherein means for attaching to a cartridge are provided at the base of the nozzle.
7. An adjustable nozzle substantially described herein with reference to figures 1-4 of the accompanying drawings.





Application No: GB 0217904.2  
Claims searched: 1-7

Examiner: Michael Young  
Date of search: 13 February 2003

## Patents Act 1977 : Search Report under Section 17

### Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1-6	WO1999/002274 A1 (DALE) See fig.6 especially.
X	1-6	WPI A.A.N: 2002-228765 [29] & DE 20118745 U1 (MACK) (21/02/02). See translated abstract & figs. 1& 2.
X	1-6	WPI A.A.N: 1999-230545 [20] & DE 19744250 A1 (HEUBL) (08/04/99). See translated abstract & figs. 5,6 & 7.
X	1-6	WPI A.A.N: 1985-311500 [50] & DE 3420765 A1 (SCHMID) (05/12/85). See translated abstract & figs. 3 & 4 especially.

### Categories:

X Document indicating lack of novelty or inventive step	A Document indicating technological background and/or state of the art.
Y Document indicating lack of inventive step if combined with one or more other documents of same category	P Document published on or after the declared priority date but before the filing date of this invention.
& Member of the same patent family	E Patent document published on or after, but with priority date earlier than, the filing date of this application

### Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>V</sup>:

B2F; F1R

Worldwide search of patent documents classified in the following areas of the IPC<sup>7</sup>:

B05B; B05C

The following online and other databases have been used in the preparation of this search report:

WPI, EPODOC, JAPIO